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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,413	07/09/2001	Eyal Krupka	884.433US1	7369
7590	11/16/2005		EXAMINER	
Schwegman, Lundberg, Woessner & Kluth, P.A. P.O. Box 2938 Minneapolis, MN 55402			KIM, KEVIN	
			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/901,413

Applicant(s)

KRUPKA, EYAL

Examiner

Kevin Y. Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed on August 25, 2005 have been fully considered but they are not persuasive.

Applicant has provided an IEEE publication ("the Duel-Hallen reference") as a support for enabling the claimed element of "the reduced alphabet determination unit." However, nothing is found in this reference as to a structure or method for identifying a reduced alphabet. According to the specification, "a reduced complexity equalizer" generates an output signal and the reduced alphabet determination unit is said to identify a subset of symbols that are more likely than other symbols. Since no details of how this determination is made was not disclosed, a question was raised in the previous Office actions. And this amendment and argument is still insufficient to answer the question. A reasonable explanation of a way the determination is made would overcome the rejection of the pending claims.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 112***

3. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites “a reduced alphabet determination unit” and “a reduced alphabet MLSE equalizer.” Claims 15 and 22 recite “determining a reduced alphabet” and “using a reduced alphabet MLSE equalizer.” Claim 25 recites “a reduced state, full-alphabet MLSE equalizer” and “full-state, reduced alphabet MLSE equalizer.” Claim 28 recites “means for determining, ..., a reduced symbol alphabet” and “a full-state MLSE equalizer.” Identification of “a reduced alphabet” and “a reduced alphabet MLSE equalizer” are thus critical elements of the claimed invention. However, the specification including the drawings merely reiterates the claimed functions of these elements. Specifically, the drawings show no detailed structures for these elements. Fig.1, for instance, is a block diagram comprised of blocks with labels written inside pertaining to these elements. The specification also lacks the descriptions of these blocks. When known elements are employed, a detailed description is not required and a block diagram where each of the known elements may be represented as a block. But with respect to the present application, “reduced complexity equalizer” and “reduced alphabet MSLE equalizers” are not conventionally known equalizers but are described as the present invention. Thus, the specification fails to disclose a “reduced alphabet” equalizer structure that would have allowed one skilled in the art make the present invention. Since the present invention is drawn to a “reduced alphabet” equalizer, at least a distinction from conventional or “non-reduced alphabet” equalizer could have been made to enable one skilled in the art to reconstruct the present invention. Without sufficiently disclosed structures, it appears that one skilled in the art would not be able to make the claimed invention without undue experimentation.

The remaining claims are rejected for the same reason as they include the rejected base claims respectively.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 28 is rejected under 35 U.S.C. 102(e) as being anticipated by Kakura et al (US 6,366,612).


Kakura et al discloses a communication device, see Fig.1, comprising ;  
means (106) for receiving a communication signal from a communication channel  
means (107) for determining a reduced symbol alphabet that are more likely to be an  
actual transmitted symbol than other symbols and  
a full-state MLSE equalizer (109) for processing the communication signal based on the  
reduced symbol alphabet. See col.6, line 58 – col.7, line 6 in particular.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Kevin Kim', is centered on the page.

**KEVIN KIM  
PATENT EXAMINER**